REMARKS

In an Office Action dated May 5, 2005, the Examiner objected to claims 3 and 10 under 37 CFR 1.75 (c) as being of improper form for failing to further limit the subject matter of a previous claim. In particular, the Examiner noted that claims 2 and 9 already recite that the filter is a digital IIR filter and that the transfer functions of claims 3 and 10 are so generic that they describe any digital filter and therefore are not seen to further limit the preceding claims.

The Examiner rejected claims 8-10 under U.S.C. §102(e) as being anticipated by Vu et al. (U.S. patent no. 6,002,925, hereinafter referred to as "Vu"). The Examiner rejected claims 1-3, 5, 6, and 12-17 under 35 U.S.C. §103(a) as being unpatentable over Vu in view of Love et al. (U.S. patent no. 5,422,909, hereinafter referred to as "Love"). The Examiner rejected claim 7 under 35 U.S.C. §103(a) as being unpatentable over Vu in view of Love and further in view of Crochiere et al., "Interpolation and Decimation of Digital Signals – A Tutorial Review" (hereinafter referred to as "Crochiere"). The Examiner objected to claims 4 and 11 as being dependent upon a rejected base claims but as being allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claim. The rejections and objections are traversed and reconsideration is hereby respectfully requested.

The Examiner objected to claims 3 and 10 under 37 CFR 1.75 (c) as being of improper form for failing to further limit the subject matter of a previous claim. Claims 3 and 10 are now canceled.

The Examiner rejected claims 8-10 under U.S.C. §102(e) as being anticipated by Vu. With respect to claim 8, the Examiner contended that Vu teaches amplifying, by an amplifier, (FIG. 1, element 40), digitizing (FIG. 1, ADC 52), lowpass filtering (FIG. 1, LPF 57), calculating an average power (col. 11, line 62), and setting the gain of the amplifier (FIG. 1, element 54), wherein the AGC block supplies the gain control setting to amplifiers 40 and 48. The applicants believe that the Examiner has misapplied Vu to the features of claim 8.

6

Vu teaches a lowpass filter 57 that functions as a power estimator filter and that determines an average power estimate of a signal based on a preceding average power estimate and a current signal power received from a demodulator 56 (FIG. 7; col. 12, lines 15-24). Nowhere does Vu teach the features of claim 8 of lowpass filtering a feedback signal to generate a lowpass filtered digital sample series and then calculating an average power of the lowpass filtered digital sample series. That is, Vu teaches filtering energy samples to produce an estimated signal power. By contrast, claim 8 teaches applying a digital filter to received data samples, not energy samples, in the feedback circuit. By applying a digital filter to received data samples, as opposed to energy samples, claim 8 teaches a method for automatic gain control that permits a relaxation of front-end analog filter specifications, albeit at a cost of possibly requiring slightly more dynamic range in the analog-to-digital converter (ADC). Therefore, Vu does not teach the features of claim 8 of digitizing the amplified communications signal to produce a feedback signal comprising a series of digital samples representative of the amplified communications signal, lowpass filtering the feedback signal to generate a lowpass filtered digital sample series, and calculating an average power of the lowpass filtered digital sample series. Accordingly, the applicants respectfully request that claim 8 may now be passed to allowance.

Since claims 9 and 11-17 depend upon allowable claim 8, the applicants respectfully request that claims 9 and 11-17 may now be passed to allowance.

The Examiner rejected claims 1-3, 5, 6, and 12-17 under 35 U.S.C. §103(a) as being unpatentable over Vu in view of Love et al. (U.S. patent no. 5,422,909, hereinafter referred to as "Love"). In particular, with respect to claim 1, the Examiner contended that Vu teaches all of the features of claim 1 except for the gain step as being obtained from a look-up table, which gain step is taught by Love. The applicants respectfully disagree. As noted above, Vu does not teach the features of claim 1 of a digital lowpass filter for filtering a series of digital samples generated by an analog-to-digital converter to generate a lowpass filtered digital sample series and a power averager coupled to the digital lowpass filter for calculating an average power of the lowpass filtered digital sample series. Therefore, the applicants respectfully submit that neither Vu nor Love,

7

individually or in combination, teach the features of claim 1 and respectfully request that claim 1 may now be passed to allowance.

Since claims 2-6 depend upon allowable claim 1, the applicants respectfully request that claims 2-6 may now be passed to allowance.

The Examiner rejected claim 7 under 35 U.S.C. §103(a) as being unpatentable over Vu in view of Love and further in view of Crochiere. More specifically, the Examiner contended that Vu in view of Love teaches all of the features of claim 7, including decimation, but it does not disclose a multi-stage implementation of decimation with an IIR lowpass filter between the two stages. However, the Examiner contended that Crochiere teaches a multi-stage implementation of decimators (pages 438-9) and that it would have been obvious from the teachings of Crochiere to build the decimator of Love as a multi-stage decimator.

The applicants respectfully disagree. As noted above, Vu does not teach the features of claim 7 of an infinite impulse response digital lowpass filter for filtering a first decimated digital sample series to generate a filtered digital sample series, a second decimator coupled to the infinite impulse response digital lowpass filter for generating a second decimated digital sample series from the filtered digital sample series, and a power averager coupled to the second decimator for calculating an average power of the second decimated sample series. Further, the decimator taught by Love is used in a main signal path and not in the automatic gain control feedback circuit, as opposed to the teachings of claim 7. In addition, Crochiere teaches a daisy-chaining of decimators, which would merely replace the decimator of Love with multiple daisy-chained decimators. This is different from decimating a signal, processing the decimated signal, and then decimating the processed signal, as is taught by claim 7.

Therefore, the applicants respectfully submit that neither Vu, Love, or Crochiere, individually or in combination, teach the features of claim 7 of a feedback circuit of automatic gain control loop having a first decimator for generating a first decimated digital sample series from a series of digital samples generated by an analog-to-digital converter, an infinite impulse response digital lowpass filter coupled to the first decimator

8

for filtering the first decimated digital sample series to generate a filtered digital sample series, a second decimator coupled to the infinite impulse response digital lowpass filter for generating a second decimated digital sample series from the filtered digital sample series, and a power averager coupled to the second decimator for calculating an average power of the second decimated sample series. Accordingly, the applicants respectfully request that claim 7 may now be passed to allowance.

As the applicants have overcome all substantive rejections and objections given by the Examiner and have complied with all requests properly presented by the Examiner, the applicants contend that this Amendment, with the above discussion, overcomes the Examiner's objections to and rejections of the pending claims. Therefore, the applicants respectfully solicit allowance of the application. If the Examiner is of the opinion that any issues regarding the status of the claims remain after this response, the Examiner is invited to contact the undersigned representative to expedite resolution of the matter.

Respectfully submitted,

Yuda Luz, et al.

By: _____

Steven A. May
Attorney for Applicant
Registration No. 44,912
Phone No.: 847/576-3635
Fax No.: 847/576-3750

9